BUFFALO

User Manual

Gigabit Managed Switch with PoE+

BSL-PS-G2108M

BSL-PS-G2116M

www.buffalotech.com

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Chapter 1 - Product Overview

Features

Models Available

BSL-PS-G2116M

- 16 1000BASE-T/100BASE-TX/10BASE-T ports.
- 2 SFP ports. (SFP ports are used exclusively with the ports 15A to 16A.)

BSL-PS-G2108M

- 8 1000BASE-T/100BASE-TX/10BASE-T ports.

Common Hardware Specifications

- All ports support Auto-MDIX.
- System memory: 64 MB
- Internal buffer: 512 kB (packet buffer)
- Equipped with LED indicators
- Equipped with a USB port
- Equipped with a hardware reset switch

Layer 2 Switching

- Supports 802.3x flow control and back pressure
- Throughput 1000M: 1488095 pps, 100M: 148810 pps, 10M: 14880 pps
- VLAN support (VLAN groups: 256, VLAN ID: 1 to 4094). IEEE 802.1Q tag VLAN support
- Supports Privacy Separator (private VLAN)
- Supports trunking (Fixed or by LACP)
- Port mirroring support
- Up to 8,192 MAC addresses can be entered
- Traffic Storm Control (Broadcast, Multicast, and DLF)
- HOL blocking prevention
- Supports jumbo frames (up to 2kB receipt and 9kB switching)

Administration

- SNMP V1, V2c support
- MIB-2 System, MIB-2 Interfaces, Bridge MIB (dot 1d Base and dot 1d Tp), Q-Bridge MIB support

- RMON group 1, 2, 3 and 9 support (Statistics, History, Alarm, and Event)
- The device can be configured by Web (HTTP)
  To display the settings screen for a LAN port, the VLAN to which the port belongs must be a Management VLAN.
- Firmware upgrades by HTTP
- Firmware upgrades by USB
- Saving and restoring settings by HTTP
- Saving and restoring settings by USB
- Loading configuration from USB on startup
- Syslog and Syslog server support
- SNTP client support
- Support for Buffalo Network Admin Tools
- Supports loop prevention functions (MAC address thrashing, LDF, reception rate system)

Security

- Username and password
- IEEE 802.1X port authentication support (EAP-MD5, EAP-TLS, and EAP-MS-PEAP)
- IEEE 802.1X MAC authentication support (EAP-MD5, EAP-TLS, and EAP-MS-PEAP)
- Password authentication support (PAP)
- MAC authentication support (PAP)
  When performing IEEE 802.1X MAC authentication, EAPOL-Start must be issued from the supplicant to start authentication.
  When performing IEEE 802.1X MAC authentication, Web authentication, or MAC authentication, authentication is possible for a maximum of 12 devices per port.
- RADIUS authentication (IEEE 802.1X and login user authentication)
  A separate RADIUS server is required.
- Able to set Session-timeout and enable or disable Termination-Action
- Supports setup of management VLAN
- Static MAC address filtering support (specified MAC addresses only can pass through the switch)
- Dynamic MAC address filtering support (preset number of units only can pass through the switch)

QoS

- Port-based packet prioritization
- Packet prioritization based on IEEE 802.1p
- IP packet prioritization based on TOS
- Level 4 queue support
- Weighted round robin or strict queue scheduling

PoE (Power over Ethernet)

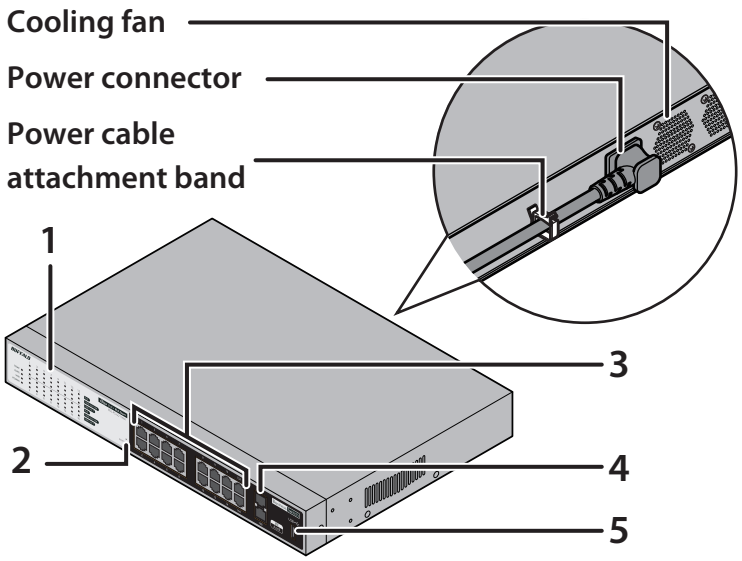
- Compliant with IEEE 802.3at and IEEE 802.3af
- Overcurrent protection function compliant with IEEE 802.3at and IEEE 802.3af
- Up to 30 W of power can be supplied at each port (proprietary Buffalo function that is an extension of the IEEE 802.3af standards, Supports IEEE 802.3at LLDP).
- If using the BSL-PS-G2116M, a maximum total of 180 W of power can be supplied to all devices.
- If using the BSL-PS-G2108M, a maximum total of 150 W of power can be supplied to all devices.

Power Saving

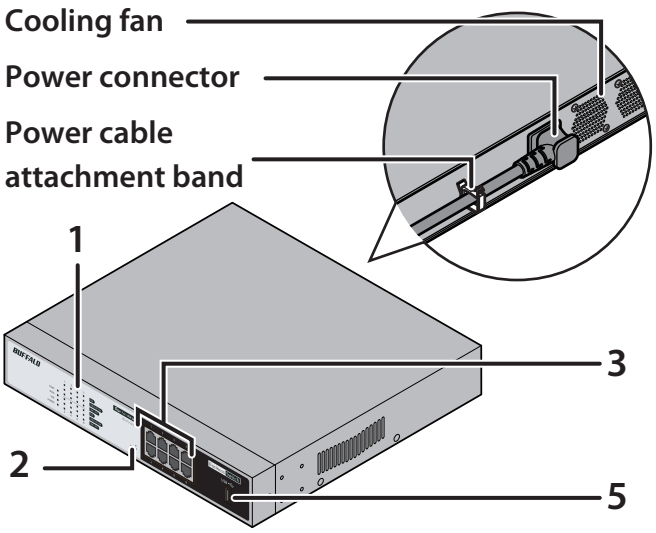
- Support for low-power idle operation (IEEE 802.3az)
- Power saving based on link status
- Power saving based on automatic determination of LAN cable length
- Profiles for turning off LEDs

Diagram

BSL-PS-G2116M



BSL-PS-G2108M



1. Indicators

Indicators are located on the front panel of the switch. The functions of each indicator are shown below.

LED	Status
Power (green)	On: Power is on Off: Power is off
USB (green)	On: USB device inserted Blinking: Accessing the USB memory device Off: USB device removed
Diag (green or red)	On (green): Normal On (red): Hardware reset switch was activated during startup or during self-diagnosis Blinking (red): Loop was detected by loop detection function
Temp (red)	On: Internal fan is stopped Off: Normal Unplug the power cable when this indicator is lit to prevent overheating.

LED	Status
PoE (green or orange)	On (green): PoE is being supplied On (orange): The load exceeds the specified value or a short circuit was detected Off: PoE is not being supplied
1000/100/10M (green or orange)	On (green): 1000M link established On (orange): 100M link established Off: 10M link established or no link established
LINK/ACT (green)	On: Link established Blinking: Data transmission is in progress Off: No link established

2. Reset switch

If this switch is held until the Diag indicator is lit (approx. 3 seconds), the switch settings can be restored to their factory defaults.
The reset switch is enabled by default. If the reset switch is disabled via the WEB UI, it will cease functioning.

3. 1000BASE-T/100BASE-TX/10BASE-T ports

Each port supports autonegotiation. The optimal duplex mode (full-duplex/ half-duplex) and transfer speed (1000 / 100 / 10 Mbps) are selected automatically.
Each port also supports AUTO-MDIX. As the port type at the other end is determined automatically, there is no need to make a selection of either a straight cable or a crossover cable.
However, the AUTO-MDIX function is disabled if the transfer speed and duplex mode are fixed.
The shared ports and SFP ports only support Auto Negotiation.

Note: When using 1000BASE-T, use a IEEE802.3ab compliant cable that supports Category 5e or higher as the connection cable.

4. SFP ports

These are ports for attaching 1000BASE-LX and 1000BASE-SX modules. Optional modules (BS-SFP-GLR, BS-SFP-GSR) (sold separately) are required to use these ports. These support autonegotiation and flow control, and operate in full-duplex mode with a transfer speed of 1 Gbps.
The shared ports cannot be used at the same time as SFP ports. When cables are connected to SFP ports, shared ports are disabled.

5. USB port

This is a port for connecting USB devices. Only USB 1.1 and FAT32 are supported. The USB memory is attached when the switch is shipped. (Formatted with the FAT32 file system)
Do not remove the USB memory during USB access or while the switch is starting.

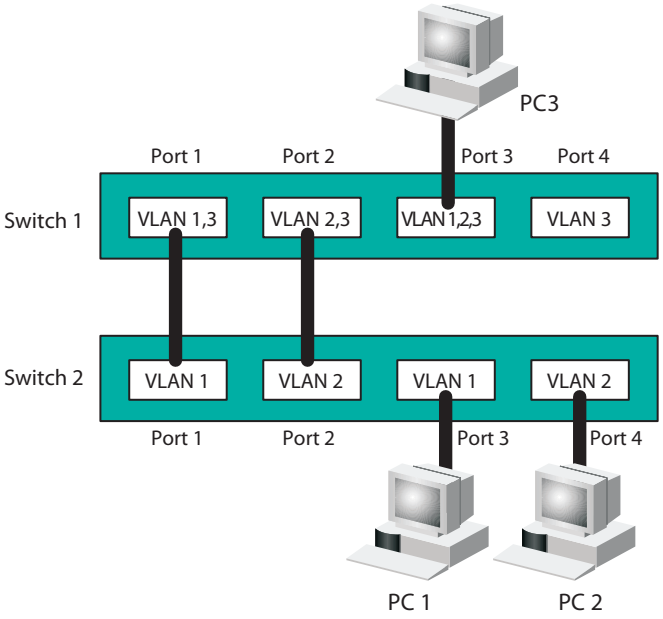
Cooling Fan

A fan for cooling the power supply is installed in the rear panel of the switch. If the fan stops, a buzzer sounds and PoE functionality is disabled. Although switching still functions, turn off the unit and disconnect power until the fan is fixed. Prolonged usage in this state can result in a fire due to overheating.

MAC Address Learning

The switch uses IVL to learn MAC addresses.
IVL is a method that retains a MAC address table for each VLAN. It differs from SVL, which retains a shared MAC address table for the entire device.
Be sure you understand how IVL works before you create a VLAN with the switch.

Differences between Operation of IVL and SVL

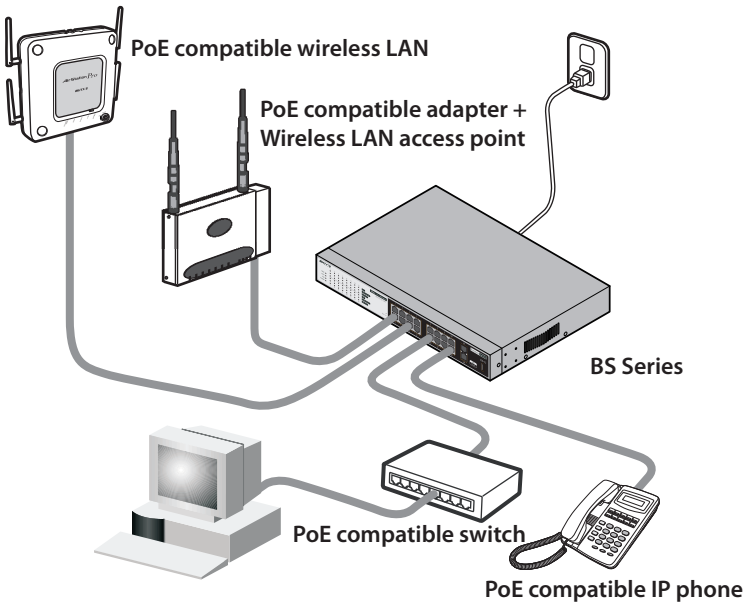


IVL
When PC 1 and PC 3 communicate, PC 3 is learned by both VLAN 1 and VLAN 2 so PC 2 and PC 3 can communicate. However, frames sent from PC 3 to PC 1 are also delivered to PC 2.

SVL
When PC 1 and PC 3 communicate, PC 3 is learned by Port 1 on Switch 2 so PC 2 and PC 3 cannot communicate.

PoE Plus

This switch supports 802.3at PoE Plus (Power over Ethernet Plus). PoE supplies power to network devices over LAN cables. A single LAN cable can carry both data and power. Wireless access points, switching hubs, IP phones, and other Ethernet-powered devices can be installed without connecting power cables or worrying about power outlet locations.



The maximum output power of each model is shown below.

BSL-PS-G2108M: 150 W (total for 8 ports)

BSL-PS-G2116M: 180 W (total for 16 ports)

If maximum current is exceeded and overcurrent protection is activated, normal power for smaller port numbers is prioritized. Also, ports can be given a higher priority setting manually.

Chapter 2 - Configuration

Settings

This chapter describes how to use the web-based configuration interface to configure the switch and monitor the network.
Use a Web browser such as Internet Explorer 7.0 or later to display Settings.

Accessing settings

1 Connect the administrator computer.

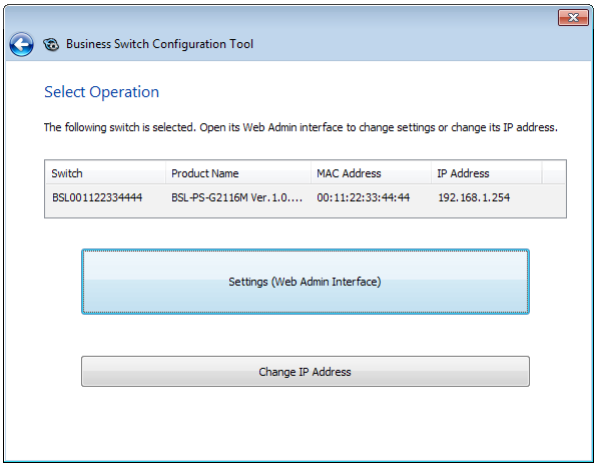
2 Download the "Business Switch Configuration Tool" from Buffalo's website and install it.

3 Start the "Business Switch Configuration Tool".

4 Click *Next*.

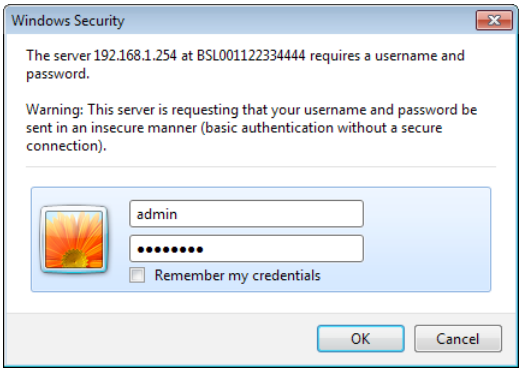
5 Select the switch to configure and click *Next*.

6 Click *Settings*.



7 Click *OK*.
If the IP Address screen appears, select "Get IP address from DHCP" or set the IP address manually and click *Next*.

8 Log in to the switch configuration interface.

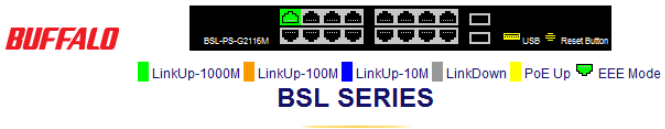

Windows Security
The server 192.168.1.254 at BSL001122334444 requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
admin
Remember my credentials
OK
Cancel

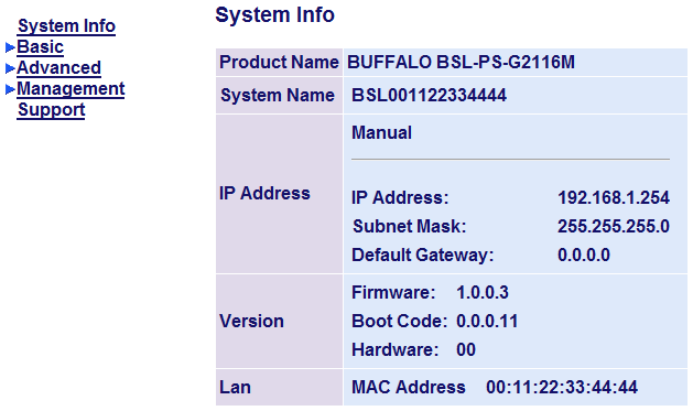
Enter "admin" for the username and "password" for the password, then click *OK*.

9 The admin interface is displayed.

Home

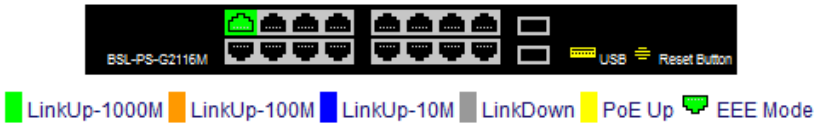
When you connect to the switch with your Web browser, the home page is displayed. The menu tree is displayed on the left of the screen and the system information is displayed on the right. Click the links in the menu tree to move to other menus and display setup parameters and statistics.





Panel Display

The status of each port (link status, link speed, low-power idling) is displayed on the switch is displayed in the Web setup interface. If you click the diagram of the port, the port setup screen will be displayed.

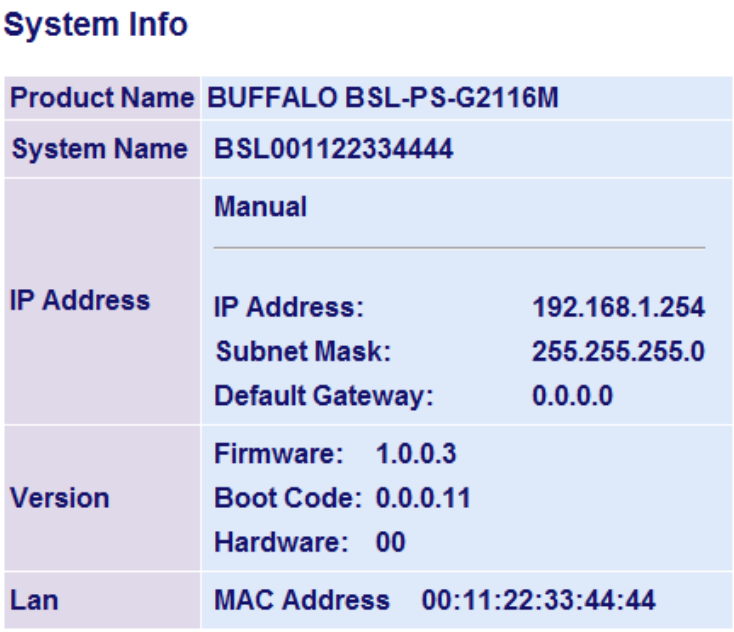


Main

System Info

You can verify settings and the status of the switch here.

---> System Info



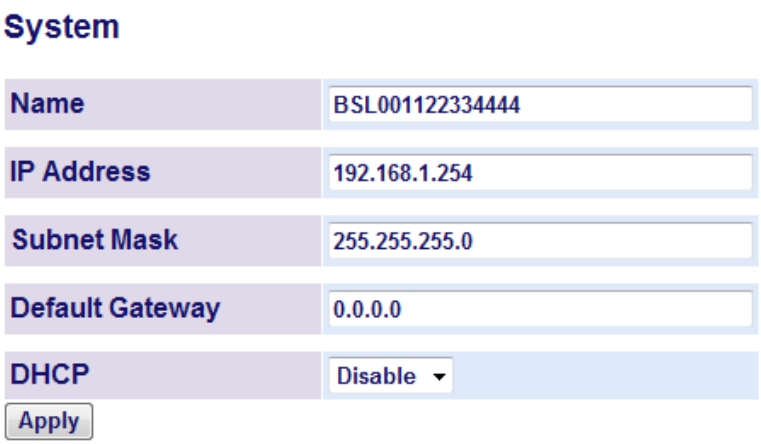
Parameter	Meaning
Product Name	Product name.
System Name	Name of the switch.
IP Address	IP address, subnet mask and default gateway of the switch.
Firmware	Firmware version of the switch.
Boot Code	Boot code version of the switch.
Hardware	Hardware version of the switch.
MAC Address	MAC address of the switch.

Basic

System

These settings specify information for identifying the switch.

---> Basic > System

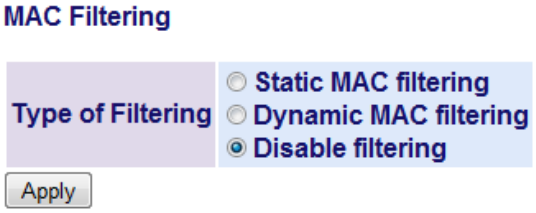


Parameter	Meaning
Name	The name of the switch may contain up to 31 alphanumeric characters, hyphens (-), and underscores (_).
IP Address	Set an IP address of the switch.
Subnet Mask	Set a subnet mask of the switch.
Default Gateway	Set the default gateway IP address.
DHCP	This enables or disables acquisition of IP addresses via DHCP. Enabled: The IP address is obtained from a DHCP server. Disabled: The function for obtaining the IP address from a DHCP server is disabled.

MAC Address Filtering

The filtering settings are made by MAC address.

---> Basic > MAC Address Filtering



Parameter	Meaning
Type of Filtering	This enables or disables the MAC filtering.
For Static MAC filtering	
MAC address	This sets the MAC address where the address filter will be added or removed. (Input example: 00:11:22:aa:bb:cc) To register, select the port to be registered, and click *Register*. To remove, select the port where the MAC address is registered, and click *Delete*.

Notes:
- All frames can pass through ports where no MAC address is registered.
- In ports where a MAC address is registered, only frames that have the registered MAC address as the source MAC address can pass through, and other frames are blocked.
- Frame filtering is performed during input to the port.
- Up to 16 MAC addresses can be registered per port.
- If a MAC filter is set, 802.1x authentication cannot be performed at the port.

For Dynamic MAC filtering	
# of MAC	This sets the number of devices (0 to 8191) where dynamic MAC address learning is allowed for each port.

Notes:
- Ports where the number of setting units is left blank are set to allow all MAC addresses.
- Each port can be set in the range from 0 to 8191, but the switch can learn a maximum of 8191 MAC addresses only. If the number of addresses exceeds 8191, MAC addresses are discarded without learning them.

Flow Control Status

This displays the Flow Control Status.

---> Basic > Flow Control > Status

Flow Control Status

Port	Name	Allow	Flow Control	EEE	Link	Mode	Rate and Duplex	Jumbo Frames
1	port_01	On	Off	On	Up	Auto	1000 Mbps Full	On
2	port_02	On	Off	On	Down	Auto	–	On
3	port_03	On	Off	On	Down	Auto	–	On
4	port_04	On	Off	On	Down	Auto	–	On
5	port_05	On	Off	On	Down	Auto	–	On
6	port_06	On	Off	On	Down	Auto	–	On
7	port_07	On	Off	On	Down	Auto	–	On
8	port_08	On	Off	On	Down	Auto	–	On
9	port_09	On	Off	On	Down	Auto	–	On
10	port_10	On	Off	On	Down	Auto	–	On
11	port_11	On	Off	On	Down	Auto	–	On
12	port_12	On	Off	On	Down	Auto	–	On
13	port_13	On	Off	On	Down	Auto	–	On
14	port_14	On	Off	On	Down	Auto	–	On
15	port_15	On	Off	On	Down	Auto	–	On
16	port_16	On	Off	On	Down	Auto	–	On

Parameter	Meaning
Name	Displays the port name.
Allow	Displays whether the port is enabled or disabled.
Flow Control	Displays whether flow control is enabled or disabled.
EEE	Displays whether low-power idling (IEEE 802.3az) is enabled or disabled.
Link	Displays whether the link is up or down.
Mode	Displays whether the communications mode is set to Auto or Manual.
Jumbo Frames	Displays whether jumbo frames are enabled or disabled.

Flow Control

These settings are used to configure the flow control of each port.

---> Basic > Flow Control > Flow Control

Flow Control

Port	Name	Allow	Flow Control	EEE	Mode	Jumbo Frames
1	port_01	On	Off	On	Auto	On
2	port_02	On	Off	On	Auto	On
3	port_03	On	Off	On	Auto	On
4	port_04	On	Off	On	Auto	On
5	port_05	On	Off	On	Auto	On
6	port_06	On	Off	On	Auto	On
7	port_07	On	Off	On	Auto	On
8	port_08	On	Off	On	Auto	On
9	port_09	On	Off	On	Auto	On
10	port_10	On	Off	On	Auto	On
11	port_11	On	Off	On	Auto	On
12	port_12	On	Off	On	Auto	On
13	port_13	On	Off	On	Auto	On
14	port_14	On	Off	On	Auto	On
15	port_15	On	Off	On	Auto	On
16	port_16	On	Off	On	Auto	On

If EEE is enabled, idle ports will be automatically disabled to reduce power consumption.
For best results, EEE should be enabled for all network devices.

Apply

Parameter	Meaning
Name	The port name may contain up to 16 alphanumeric characters, hyphens (-), and underscores (_).
Allow	Enable or disable the selected port.
Flow Control	Enable or disable flow control.
EEE	Enable or disable low-power idling (IEEE 802.3az).
Mode	Specify the rate and duplex mode.
Jumbo Frames	Enable or disable jumbo frames on the selected port.

- When low-power idling (IEEE 802.3az) is enabled, the power consumed when there is no communication data being sent or received (idle status). However, the other end of the connection

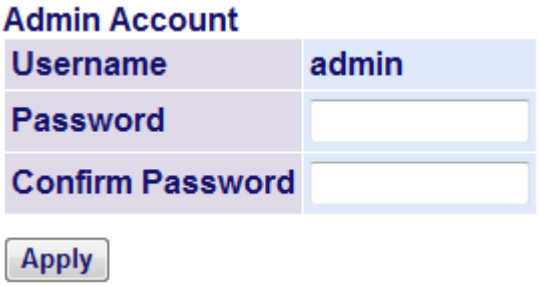
must also support the function for this to take effect.

- The Auto-MDI-X function is disabled if the rate and duplex mode are fixed.
- When using gigabit communications, autonegotiation must be used.
- SFP ports and shared ports can only be set to autonegotiation.
- When using trunk configuration, the mode is fixed to autonegotiation.
- When connecting to a device with a different rate that supports flow control, enable flow control on the switch.
- QoS does not function while flow control is enabled.

Admin Account

These settings are used to configure the username and password used for logging in to the switch.

---> Basic > Admin Account



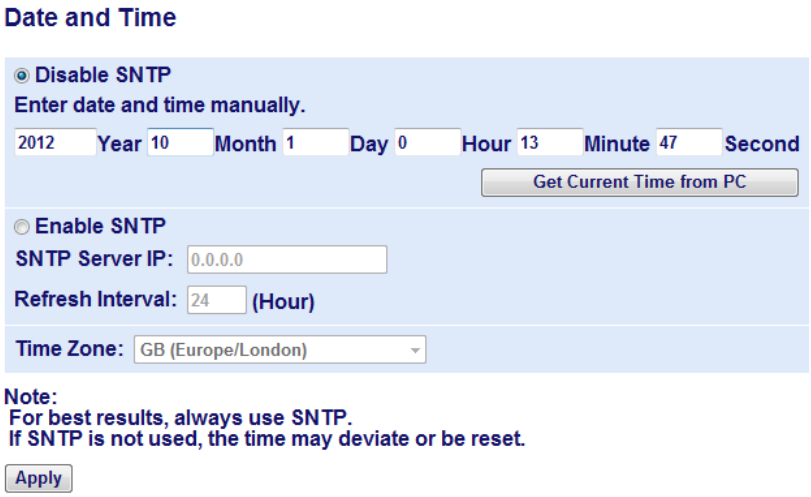
Parameter	Meaning
Username	The name of the Administrator account is "admin".
Password	This is the password for logging in to the switch. It may contain up to 8 alphanumeric characters, hyphens (-), and underscores(_).
Confirm Password	Enter the password again.

- The password field is displayed as being blank even when a password has been set. If you click *Apply* in this condition, the password will no longer be set.
- When you click *Apply*, the username and password input screen will be displayed. Input the new password.
- You may be unable to access the configuration interface if you forget the password.
- If the reset switch is enabled, you can restore the factory default settings by pressing the reset button. The reset switch is enabled by default.
- If the reset switch is disabled, you must send the device to Buffalo Technical Support to restore the factory defaults. In this event, please contact Buffalo Technical Support.

Date and Time

These settings are used to configure SNTP (Simple Network Time Protocol) settings.

---> Basic > Date and Time


Date and Time
Disable SNTP
Enter date and time manually.
2012 Year 10 Month 1 Day 0 Hour 13 Minute 47 Second
Get Current Time from PC
Enable SNTP
SNTP Server IP: 0.0.0.0
Refresh Interval: 24 (Hour)
Time Zone: GB (Europe/London)
Note:
For best results, always use SNTP.
If SNTP is not used, the time may deviate or be reset.
Apply

Parameter	Meaning
Disable SNTP	This is used to set the time without using an SNTP server. Enter date and time manually. Click *Get Current Time from PC* to use the time on the computer you are using to perform setup. This takes a few seconds to set.
Enable SNTP	This is selected to use the SNTP server. Set the SNTP Server IP, Refresh Interval, and Time Zone.

- If you do not use SNTP, the clock will be set to 00:00:00, January 1, 1900 when the switch is started, and be counted from this date. Use of SNTP is recommended because the clock may become inaccurate.
- If you use the *Get Current Time from PC* button to set the time, the time will revert to the default (00:00:00, January 1, 1900) when the switch is restarted.

PoE Status

These indicators show the PoE status.

---> Basic > PoE > Status

PoE Status

Power	Maximum:	180000 mW
	Used:	0 mW
	Available:	180000 mW

Port	PoE	Status	Power Class	Priority	Supplied Power (mW)	Current (mA)
1	On	Unpowered	0	Low	0	0
2	On	Unpowered	0	Low	0	0
3	On	Unpowered	0	Low	0	0
4	On	Unpowered	0	Low	0	0
5	On	Unpowered	0	Low	0	0
6	On	Unpowered	0	Low	0	0
7	On	Unpowered	0	Low	0	0
8	On	Unpowered	0	Low	0	0
9	On	Unpowered	0	Low	0	0
10	On	Unpowered	0	Low	0	0
11	On	Unpowered	0	Low	0	0
12	On	Unpowered	0	Low	0	0
13	On	Unpowered	0	Low	0	0
14	On	Unpowered	0	Low	0	0
15	On	Unpowered	0	Low	0	0
16	On	Unpowered	0	Low	0	0

Parameter	Meaning
Power	Maximum: This indicates the maximum suppliable power. This switch can supply a maximum of 180000 mW. Used: This indicates the power currently being used. Available: This indicates the difference between the maximum power and power usage.
PoE	This indicates On/Off for the PoE.
Status	This indicates the PoE supply status.
Power Class	This indicates the class of the connected PD.
Priority	This indicates the priority of the connected PD.
Supplied Power (mW)	This indicates the supply power for each port.
Current (mA)	This indicates the supply current for each port.

Port PoE Settings

These are used to make the PoE settings.

---> Basic > PoE > Settings

Port PoE Settings

Current Profile			profile_01
Port	PoE	Priority	High Power
1	On	Low	802.3af (HP)
2	On	Low	802.3af (HP)
3	On	Low	802.3af (HP)
4	On	Low	802.3af (HP)
5	On	Low	802.3af (HP)
6	On	Low	802.3af (HP)
7	On	Low	802.3af (HP)
8	On	Low	802.3af (HP)
9	On	Low	802.3af (HP)
10	On	Low	802.3af (HP)
11	On	Low	802.3af (HP)
12	On	Low	802.3af (HP)
13	On	Low	802.3af (HP)
14	On	Low	802.3af (HP)
15	On	Low	802.3af (HP)
16	On	Low	802.3af (HP)

Apply

Parameter	Meaning
Current Profile	This indicates the profile (1 to 4) that was set in the power-saving profiler.
PoE	This enables or disables the PoE.
Priority	This sets the priority of the PoE supply. If the maximum total power supply is exceeded, power is supplied to the ports with the higher priority. If the priority is the same, the smaller port number is given priority.

Parameter	Meaning
High Power	If enabled, the proprietary Buffalo high-power function, an extension of the IEEE 802.3af standards, allows a maximum of 30 W to be supplied. Class 0 to 3 devices receive 15.4 W of power; class 4 devices may use up to 30 W. If disabled, standard 802.3af power supplies up to 15.4 W max. at: LLDP packets are sent at 30-second intervals from ports set to use 802.3at. If the PD supports LLDP, power is dynamically adjusted. If the connected PD is class 0 to 3, 15.4 W of power is supplied. For class 4, 30 W of power is supplied (LLDP devices only).

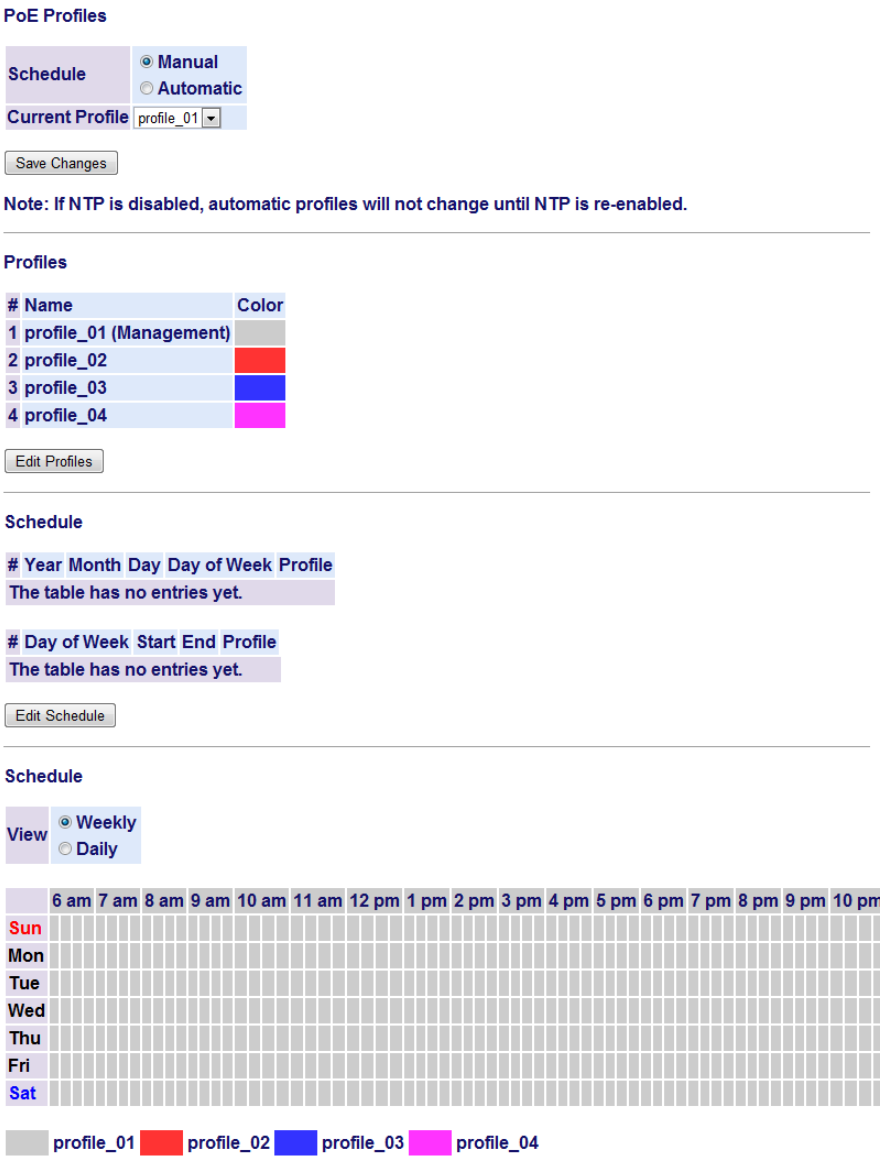
If the power supply capacity is exceeded, power is supplied with priority to the port with the smaller number.

Setting	Supported Device
Disable	802.3af powered device (PD)
af high-power	802.3af PD, Proprietary Buffalo high-power PD
at	802.3af PD, 802.3at PD

PoE Profiles

This is used to set the power-saving profiler.
The power-saving profiler is a function used to dynamically or manually switch to different PoE settings. This function can be set in the Web Admin interface only. It cannot be set from the command line interface.

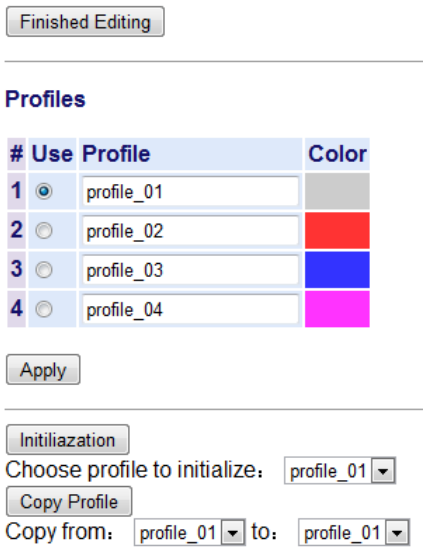
---> Basic > Power Saving > Power Profiles



Parameter	Meaning
Schedule	Manual: The profile is switched manually. Automatic: The profile is switched automatically.
Current Profile	In manual profile switching mode, this indicates the profile that is currently being used.
Profiles	This displays a list of the profiles that are currently set.
Edit Profiles	Click to edit the profile information. Click to open the profile information editing screen.
Schedule	This displays a list of the schedules that are currently set.
Edit Schedule	Click to edit the schedule. Click to open the timetable editing screen.
Schedule	Weekly: This displays the schedule by the day of the week. Daily: This displays the schedule by the day.

- To set to automatic profile switching mode, SNTP must be enabled. If SNTP is enabled but the time cannot be obtained from the server, the profile is not automatically switched and the management profile that was set in the schedule is applied, based on the internal clock of the switch.
- The settings in "Port PoE Settings" are saved to the profile selected in Current Profile. However, the "Port PoE Settings" cannot be changed when in automatic profile switching mode.
- When editing the profile, set the scheduler to *Manual*. The profile cannot be edited when the scheduler is set to *Automatic*.

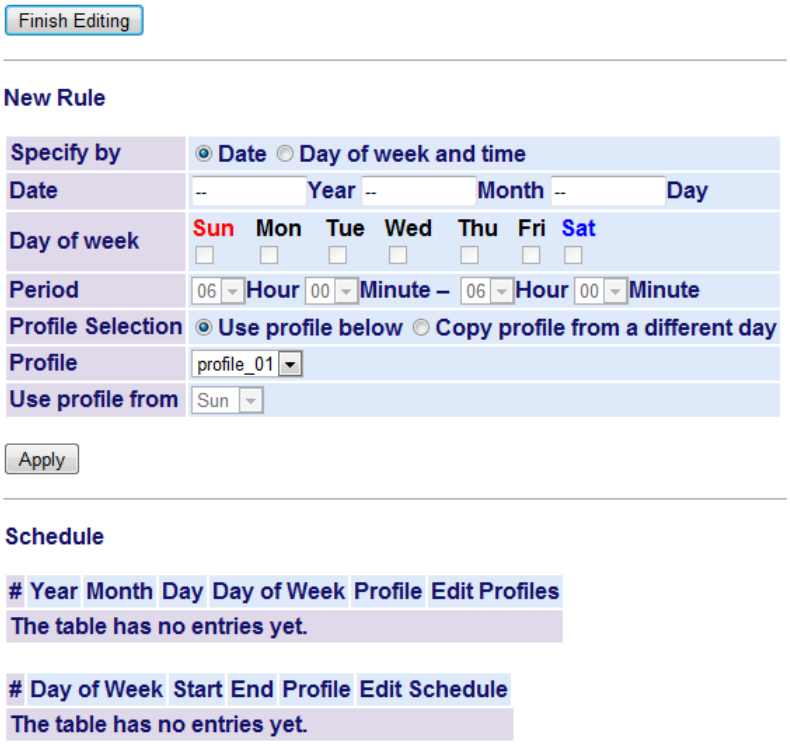
---> Basic > Power Saving > Power Profiles > Edit Profiles



Parameter	Meaning
Finished Editing	Click to return to the previous screen.
Use	This is used to select the management profile. A management profile is a profile applied to time frames not having any specific profile for the date or day of the week.
Profile	This is used to set the profile name.
Initialization	Click to initialize the profile that was selected in "Choose profile to initialize:".
Copy Profile	Click to copy the profile selected in "Copy from:" to the profile selected in "to:".

In manual profile switching mode, the profile specified as the "Current Profile" cannot be initialized or selected as the copy target.

---> Basic > Power Saving > Power Profiles > Edit Schedule



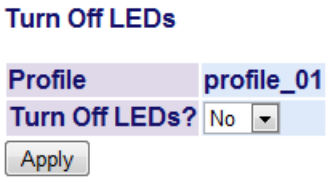
Parameter	Meaning
Finished Editing	Click to return to the previous screen.
Specify by	Select the timetable specifying method.
Date	Specify dates that are added to the timetable. This is enabled only when "Date" is selected for the specifying method. In this switch, the time from 6:00 to 30:00 is treated as one day. The time frame from 24:00 to 30:00 is equivalent to 0:00 to 6:00 of the next day.
Day of week	Specify the day of the week that is added to the timetable. This is enabled only when "Day of week and time" is selected for the specifying method.
Period	Specify the time that is added to the timetable. This is enabled only when "Day of week and time" is selected for the specifying method. The time is set in the range from 6:00 to 30:00. The time frame from 24:00 to 30:00 is equivalent to 0:00 to 6:00 of the next day.

Parameter	Meaning
Profile Selection	Specify the profile selection method. Use profile below: This specifies by the profile. Copy profile from a different day: This specifies another day of the week setting. This is enabled only when "Date" is selected for the specifying method.
Profile	Select the profile.
Use profile from	Select the day of the week. This is enabled only when "Copy profile from a different day" is selected.
Schedule	This displays the schedule list that was set.

Turn Off LEDs

This function is used to set the LEDs on and off.
This setting can be managed in the profile of the power-saving profiler, and the LEDs can be set on and off for a specified timeframe based on the scheduler.

---> Basic > Power Saving > Turn Off LEDs



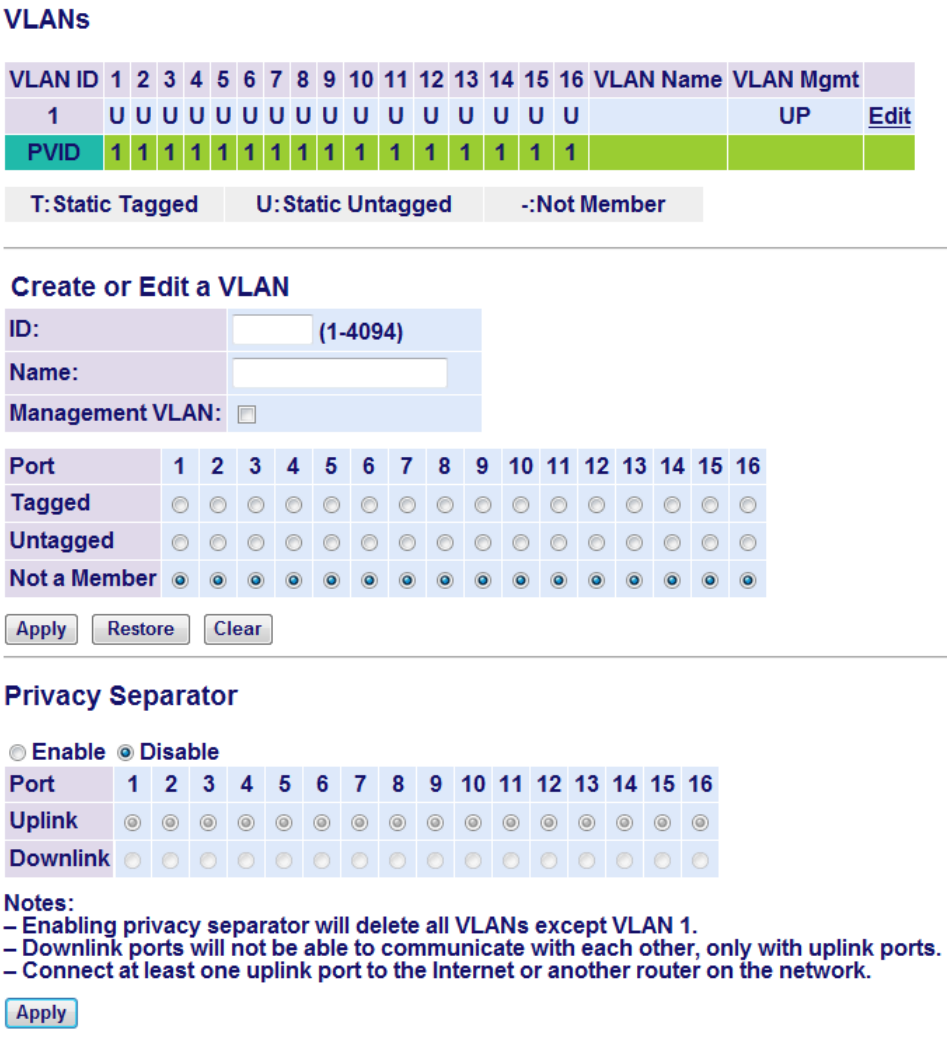
Parameter	Meaning
Profile	This indicates the current profile that is set in the power-saving profiler.
Turn Off LEDs?	No: The LEDs Off function is not used. All the LEDs turn on or off. Yes: The LEDs Off function is used. All LEDs except for the Power LEDs are turned off.

Advanced

VLANs

These settings are used to view the current VLAN settings and create new VLANs.

---> Advanced > VLANs > VLANs


VLANs
VLAN ID 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 VLAN Name VLAN Mgmt
1 U U U U U U U U U U U U U U U U UP Edit
PVID 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
T:Static Tagged U:Static Untagged -:Not Member
Create or Edit a VLAN
ID: (1-4094)
Name:
Management VLAN:
Port 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Tagged
Untagged
Not a Member
Apply Restore Clear
Privacy Separator
Enable Disable
Port 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Uplink
Downlink
Notes:
– Enabling privacy separator will delete all VLANs except VLAN 1.
– Downlink ports will not be able to communicate with each other, only with uplink ports.
– Connect at least one uplink port to the Internet or another router on the network.
Apply

Parameter	Meaning
VLANs	This displays the current VLAN configuration and PVIDs (Port VLAN IDs). The information displayed for each VLAN is the VLAN ID, port membership attributes, PVID, VLAN name and VLAN Management. You can also edit a VLAN by clicking *Edit* or delete it by clicking *Delete*. You cannot delete VLAN 1.
ID	Specify the VLAN number. Range: 1 to 4094
Name	Specify the VLAN name. Up to 17 characters including only alphanumeric characters, "-" (hyphens) and "_" (underscores)
Management VLAN	Specify a management VLAN. Only terminals connected to a management VLAN can access the configuration interface.
Tagged	Assign a port as a tagged member.
Untagged	Assign a port as an untagged member.
Not a Member	Indicates that the port as not been assigned as a member.
Restore	Reloads the current VLAN settings.
Clear	Clears the settings shown.
Privacy Separator	Enable or disable Privacy Separator (a function enabling communication from each room to the router, but blocking communication between each room).
Uplink	Port used by the router to connect to the Internet. The Uplink port can communicate with all Downlink ports. Up to 2 ports can be selected at once.
Downlink	Connect to each room. Downlink ports can communicate with uplink ports, but not with each other.

- If the VLAN ID of a received frame is not a VLAN member of the port on which it is received, it is discarded by the ingress filter.
- If you set a port as Not Member from a certain VLAN, the PVID of the port must also be changed from the VLAN ID.
  (e.g., When you change Port 5 from VLAN 2 to Not Member, change the PVID to something other

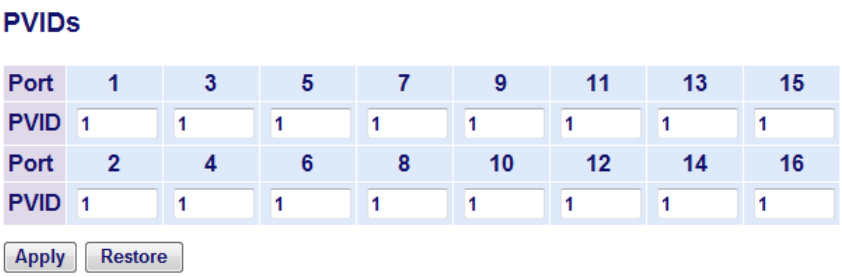
than 2.)

- In Privacy Separator, the switch's management interface can only be accessed from Uplink ports. If the port connected to the setup computer is set to be a Downlink port, you will no longer be able to access the configuration interface.
- If the Privacy Separator is enabled, all existing VLANs are deleted, and it is no longer possible to create or edit VLANs. All trunking settings are also deleted and disabled.

PVIDs

These settings are used to define PVIDs (Port VLAN IDs).

---> Advanced > VLANs > PVIDs

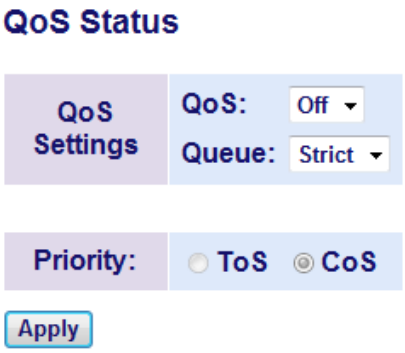


Parameter	Meaning
PVID	Specify the port VLAN ID. Untagged frames received by each port here are recognized as being in the specified VLAN number. Range: 1 to 4094

QoS Status

These settings are used to configure priority levels.

---> Advanced > QoS > Status



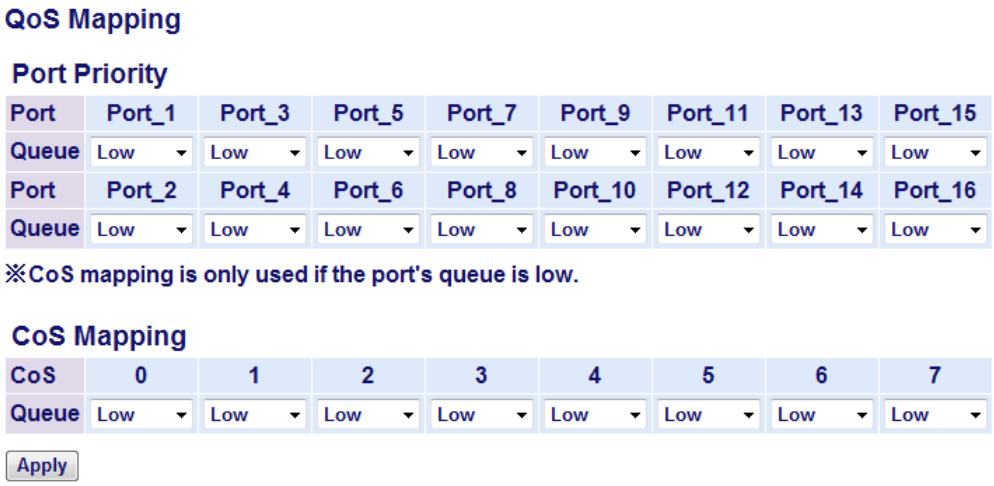
Parameter	Meaning
QoS	Enable or disable QoS.
Queue	Strict: This performs queue scheduling based on strict priority queues. Traffic with the highest priority in the queue is sent first. If there is still data with a high priority level in the queue, data with a lower priority level cannot be sent ahead of this in the queue. WRR: This performs queue scheduling based on a weighted round robin. Data is sent according to the ratio of output of data packets specified in each queue and the maximum number of data packets sent. Even packet queues with a low priority can send a certain amount of data.
Priority	Select the priority parameter used from ToS and CoS.

- QoS does not function on ports on which flow control is enabled.
- Priority assignment cannot be changed while QoS is OFF.
- The WRR (Weighted Round Robin) ratio for Highest : High : Normal : Low is 6 : 4 : 2 : 1.

QoS Mapping

These settings are used to configure the mapping of ToS, CoS, and port-based priority levels.

---> Advanced > QoS > QoS Mapping


QoS Mapping
Port Priority
Port Port_1 Port_3 Port_5 Port_7 Port_9 Port_11 Port_13 Port_15
Queue Low Low Low Low Low Low Low Low
Port Port_2 Port_4 Port_6 Port_8 Port_10 Port_12 Port_14 Port_16
Queue Low Low Low Low Low Low Low Low
※CoS mapping is only used if the port's queue is low.
CoS Mapping
CoS 0 1 2 3 4 5 6 7
Queue Low Low Low Low Low Low Low Low
Apply

Parameter	Meaning
Port Priority Queue	Sets the priority level for each port.
CoS Mapping Queue	Set the priority queue for CoS 0 to 7.
ToS Mapping Queue	Set the priority queue for ToS 000 to 111.

Only the parameters that are enabled are shown on the CoS and ToS setup screen.

Authentication Servers

This displays the status of the authentication server and port authentication.

---> Advanced > Authentication > Status

Authentication Servers

	Authentication:	Enabled							
	IP Address:	1.1.1.1							
	Port:	1812							
Status	Physical Port	1	3	5	7	9	11	13	15
	Authentication	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
	Physical Port	2	4	6	8	10	12	14	16
	Authentication	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled

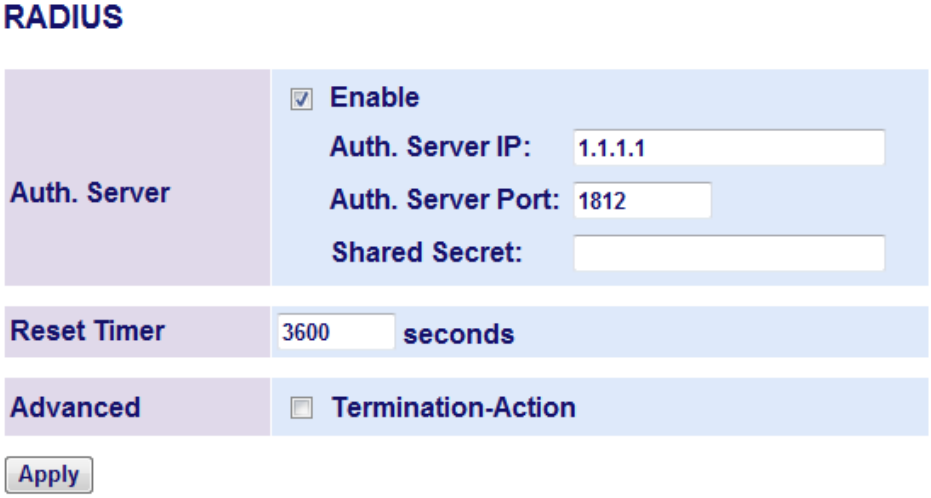
Parameter	Meaning
Status	This displays the authentication status.

If IEEE 802.1X authentication is enabled, this is always shown as disabled even if an authenticated device is connected.

RADIUS

These settings are used to configure the authentication server.

---> Advanced > Authentication > RADIUS



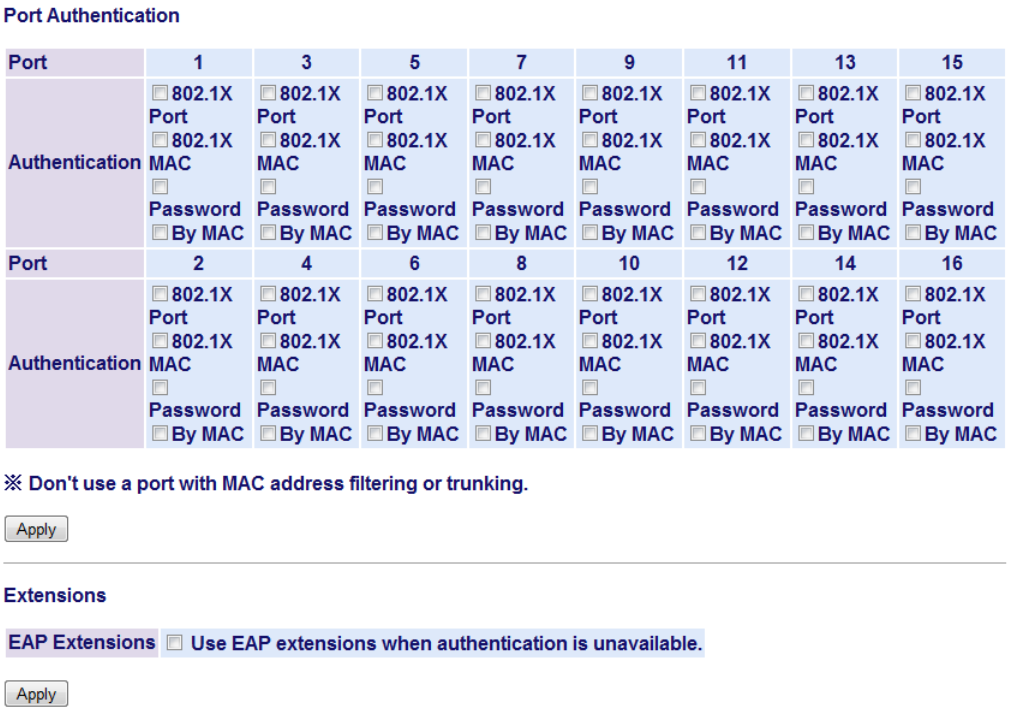
Parameter	Meaning
Enable	Enable the authentication server.
Auth. Server IP	IP address of the authentication server.
Auth. Server Port	The port number of the authentication server.
Shared Secret	The shared secret for the authentication server may contain up to 20 alphanumeric characters, hyphens (-), and underscores (_).
Reset Timer	Sets the time until the next authentication is required. Range: 1 to 65535
Termination-Action	This is selected to adhere to Termination-Action notified by the authentication server.

- The default Sesson-Timeout is 10 seconds and the default number of Retries is 2. If either has been updated, the new value is used when notified of a Session-Timeout by the authentication server.
- The switch must be reset to delete a Shared Secret that has been set. The Shared Secret can be changed.

Port Authentication

These settings are used to configure 802.1X authentication for each port.
A separate authentication server is required for port authentication.

---> Advanced > Authentication > Port Authentication


Port Authentication
Port 1 3 5 7 9 11 13 15
Authentication 802.1X Port 802.1X MAC Password By MAC
Port 2 4 6 8 10 12 14 16
Authentication 802.1X Port 802.1X MAC Password By MAC
※ Don't use a port with MAC address filtering or trunking.
Apply
Extensions
EAP Extensions Use EAP extensions when authentication is unavailable.
Apply

Parameter	Meaning
Authentication	Set authentication for each port. 802.1X Port: 802.1X authentication is performed on a port basis. When authentication is completed, communication can be performed by all devices connected to the port. 802.1X MAC: 802.1X authentication is performed on a MAC address basis. Communication can be performed only for devices where authentication has been completed. Password: This enables password authentication. To use this, the authentication server must be enabled in the password authentication settings. By MAC: This enables MAC authentication.

Parameter	Meaning
EAP Extensions	Insert a check mark here to disable the authentication function for all setting ports or to enable received EAP frames to pass through.

- In ports where MAC authentication was set, when an IP packet is received, the sender MAC address is used to perform authentication.

  Authentication is performed with the RADIUS server by using the sender MAC address as both the username and the password.

  Example: When the IP packet sender MAC address is 11:22:33:44:55:66
  Username: 112233445566
  Password: 112233445566

  A RADIUS request is sent to the RADIUS server using the username and password shown above. The user must be registered beforehand at the RADIUS server.
- MAC authentication is not started two consecutive times for the same MAC address. If MAC authentication fails, either disconnect and reconnect the LAN cable, or try authentication again after performing other authentication.
- The supported encryptions system are shown in the table below.

Authentication	Supported Encryption System	Simultaneous Setting
802.1X Port	802.1X (EAP-MD5, TLS, PEAP)	Not allowed
802.1X MAC	802.1X (EAP-MD5, TLS, PEAP)	Allowed
Password	PAP	Allowed
By MAC	PAP	Allowed

- If performing 802.1X MAC authentication, EAPOL-Start must be issued from the supplicant to start authentication.
- If 802.1X port authentication was performed, MAC address filtering can no longer be used at the applicable port.
- If PAP was used, re-authentication is not performed.
- In ports where MAC address filtering or trunking is enabled, authentication cannot be selected.

Password Authentication

This is used to make the password authentication settings.
A separate authentication server is required for password authentication.

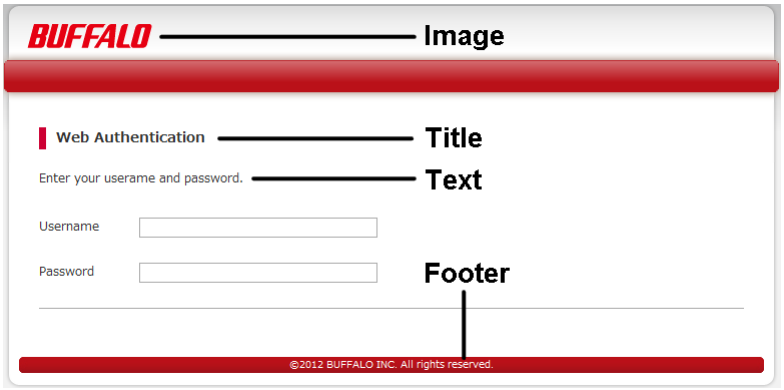
---> Advanced > Authentication > Password Authentication

Parameter	Meaning
Enable Password Authentication	This enables the password authentication server settings.
Server Port	This sets the port number for connecting to the password authentication page.
Login Shortcut	Click *Create* to create a shortcut of the password authentication page. Port number 80 cannot be set because it is already used in the Web settings.
Image	This uploads the image displayed in the password authentication page. The uploaded image file must be 125 pixels in width, 24 pixels in height, and 64 KB in size. The supported formats are JPG, GIF, PNG, and BMP. The BUFFALO logo is displayed when shipped, but once the logo is changed, it cannot be restored. Images that exceed the specified value are cropped.
Title	Title displayed in password authentication page.

Parameter	Meaning
Text	Text displayed in password authentication page.
Footer	Footer displayed in password authentication page.

The connection address of the Web authentication page is shown below.
http://switch IP address: Port number
Example: Default setting http://192.168.1.254:8080

- Only ports where Web authentication was set in "Port Authentication" can be connected to the password authentication page.
- Click *Preview* to display the current password authentication page.



Port Trunking

These settings are used to configure port trunking.

---> Advanced > Port Trunking

Parameter	Meaning
LACP	Set trunking mode and the trunk members. Disable: This disables LACP. Enable: This attempts autonegotiation by sending LACP packets. Manual: This is for manually configuring trunking. After you select this item, select the ports that are the trunk members. LACP packets are not sent or received.

- The maximum number of ports where port trunking can be set is shown below.

Product Name	LACP	Trunk Manual
BSL-PS-G2108M	4 ports	4 ports
BSL-PS-G2116M	4 ports	8 ports

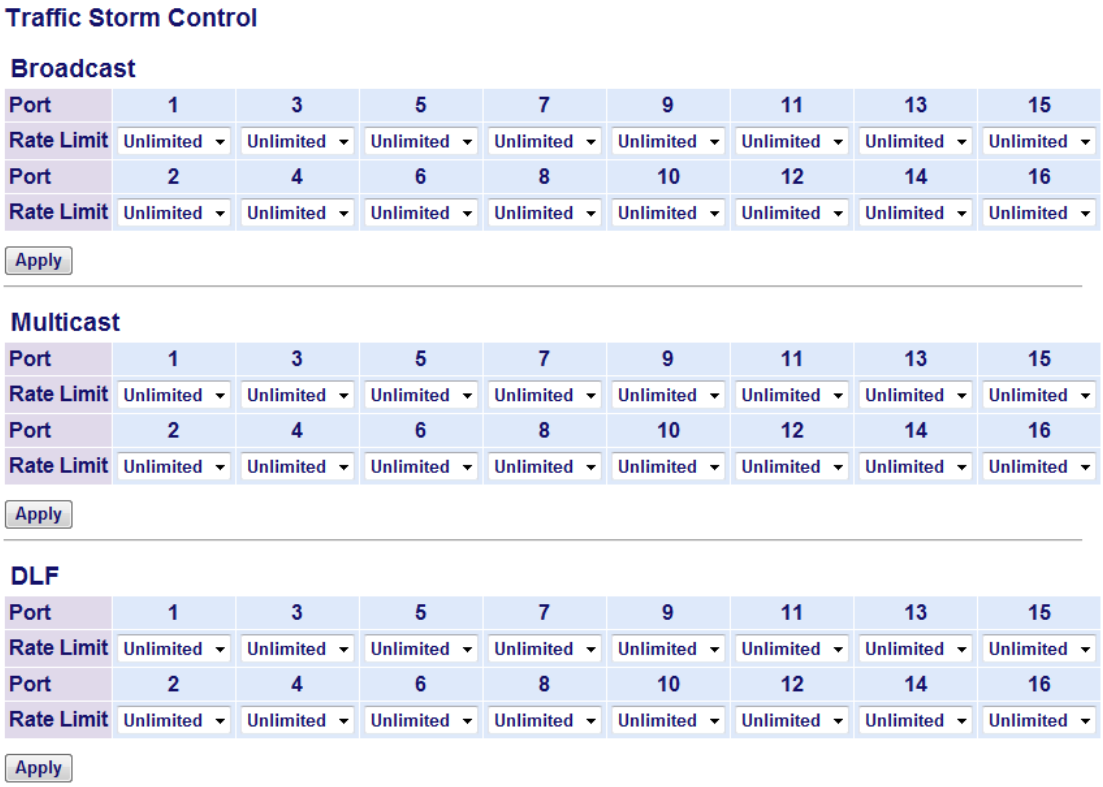
- The numbers of groups that can be created are one group for LACP and four groups for trunking, and a maximum total of four groups.
- After a trunk is created, *Edit* or *Delete* to edit or remove a trunk group.
- If configuring a trunk group by LACP, the opposite switch can be configured by both the LACP Active and Passive settings.

- If LACP or trunk is set, the ports of the same trunk group must be on the same VLAN.
- If changing the VLAN, the setting is applied to the port with the smallest port number.
- If a broadcast/multicast packet or other data is received before establishing the LACP or trunk, the switch temporarily forms a loop, and the buzzer may sound due to the loop prevention function. Operation is performed normally after the LACP or trunk is established.

Traffic Storm Control

These settings are for restricting the occurrence of storms.
When various packets exceed the Rate Limit (threshold) set here, the excess packets are discarded.

---> Advanced > Traffic Storm Control


Traffic Storm Control
Broadcast
Port 1 3 5 7 9 11 13 15
Rate Limit Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited
Port 2 4 6 8 10 12 14 16
Rate Limit Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited
Apply
Multicast
Port 1 3 5 7 9 11 13 15
Rate Limit Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited
Port 2 4 6 8 10 12 14 16
Rate Limit Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited
Apply
DLF
Port 1 3 5 7 9 11 13 15
Rate Limit Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited
Port 2 4 6 8 10 12 14 16
Rate Limit Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited Unlimited
Apply

Parameter	Meaning
Broadcast Rate Limit	The rate at which broadcasts may pass.
Multicast Rate Limit	The rate at which multicasts may pass.

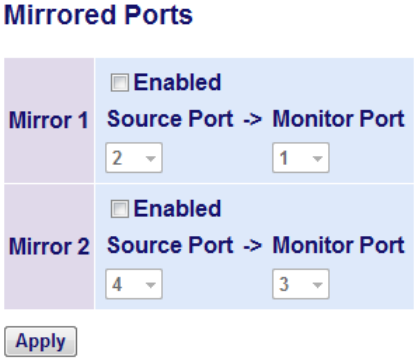
Parameter	Meaning
DLF Rate Limit	The rate of DLFs (destination lookup failure unicasts) that may be allowed to pass.

When the rate limit is set based upon broadcasts, traffic may not flow depending on the type of packet such as multicast and DLF (destination lookup failure unicasts). Set a the rate limit to a value with room considering the number of frames normally used.

Mirrored Ports

These settings are for monitoring traffic (copying content of communications from mirror source to mirror target).

---> Advanced > Mirroring

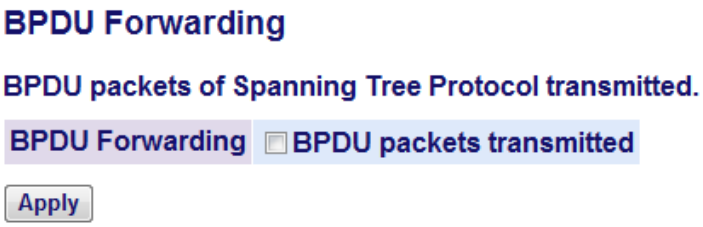


Parameter	Meaning
Mirror	This is selected to use Mirroring. Source Port: Specify the port on which traffic will be monitored. Monitor Port: Specify the port which will monitor traffic.

BPDU Forwarding

These settings are used to configure BPDU.

---> Advanced > BPDU Forwarding



Parameter	Meaning
BPDU Forwarding	Enable or disable the BPDU packets of Spanning Tree Protocol transmitted.

BPDU ： Bridge Protocol Data Unit.

Loop Prevention

Configure loop prevention settings here.

---> Advanced > Loop Prevention

Loop Prevention

Action when loops detected		○ Ignore ◉ Disable the port
		Disable for: 60 seconds
Loop Detection Method	MAC Thrashing	☐ Enable
	LDF	☐ Enable
	Receive Rate	☐ Enable If the data-received rate exceeds the values below, trigger loop prevention.

Port	Received Data Threshold
1	700 Mbps
2	700 Mbps
3	700 Mbps
4	700 Mbps
5	700 Mbps
6	700 Mbps
7	700 Mbps
8	700 Mbps
9	700 Mbps
10	700 Mbps
11	700 Mbps
12	700 Mbps
13	700 Mbps
14	700 Mbps
15	700 Mbps
16	700 Mbps

Apply

Parameter	Meaning
Action when loops detected	This sets operation when a loop is detected. Ignore : No operation is performed for the port where a loop was detected. However, the DIAG LED and LED for the port where the loop was detected both blink, and the buzzer sounds for about 60 seconds. If the loop is detected after 60 seconds, the 60-second buzzer sounds again, and the operation is repeated. Disable the port: When a loop is detected in a port, the port is disabled only for the number of seconds that was set in "Disable duration". At the same time, the DIAG LED and LED for the port where the loop was detected both blink, and the buzzer sounds for the number of seconds set in "Disable for:".
Disable for:	If "Disable the port " was set for operation when a loop is detected, this sets the time (seconds) that the port is disabled. Range: 0 to 65535 seconds
MAC Thrashing	This enables the MAC thrashing system of the loop detection function. A loop is recognized if the number of learned MAC addresses of this switch exceeds the preset threshold value in 1 second.
LDF	This enables the LDF system of the loop detection function. This sends LDF packets at 1-second intervals. A loop is recognized if the sent LDF packet is received.
Receive Rate	This enables the reception rate system of the loop detection function. A loop is recognized if the preset reception rate is exceeded.
Received Data Threshold	This sets the reception rate threshold value (1 to 1000 Mbps) for recognizing a loop.

- If the time that was set in "Disable duration" has elapsed, the port is automatically enabled.
- The loop detection function temporarily disables a port when a loop is detected. It does not prevent loops. The spanning tree function is used to block the port where the loop was detected; it automatically switches the communication route to prevent a network failure. The Buffalo switch includes both functions. Use the function you need based on your environment.

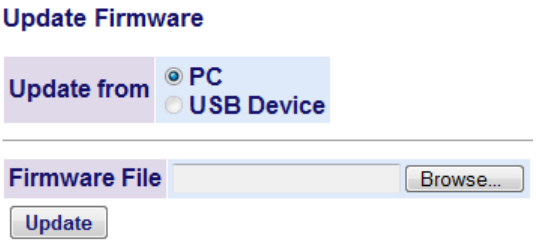
	Loop prevention	Spanning tree
Operation when loop detected	This disables the port for a preset length of time. After the preset time has elapsed, the disabled port is enabled.	This automatically blocks the port and switches the communication route.
Loop removal method	Manual Communication can be performed temporarily while the port is disabled. Except when storm control is enabled, communication cannot be performed until the loop is removed.	Automatic Communication is disconnected while switching the path.
Recommended environment	Small-scale networks	Large and medium-scale networks where a spanning tree is already set and environments where you want to completely prevent loops

Management

Update Firmware

This is used to download a firmware file and upgrade the firmware.

---> Management > Update Firmware



Parameter	Meaning
Update from	PC: Specify a firmware file stored on a computer. USB Device: Specify a firmware file stored on a USB device.
Firmware File	Click *Browse*... to specify a firmware file on the computer and click *Update* to upgrade the firmware.
Firmware File (USB Device)	A list of firmware files on the USB device is displayed. Specify a file and click *Update* to begin the firmware upgrade. The only files displayed in the list are those with a .rom extension.

- Do not turn off the switch or close the browser during the upgrade.
- Once the upgrade is complete, "The product will reboot" is displayed. Click *Reboot* to reboot. The upgraded firmware will be applied after rebooting.
- When transferring from a USB device, place the firmware file in the root directory of the USB device. Files in directories are not recognized.

Save and Restore Settings

These settings are for saving and restoring the switch's configuration information.

---> Management > Save and Restore Settings

Parameter	Meaning	
Save to	PC:	Click *Save* to save the settings.
	USB Device:	Specify the name of a file saved on the USB device as the File Name. Up to 31 characters including only alphanumeric characters, "-" (hyphens) and "_" (underscores).
Restore from	PC:	Click *Browse...* for the File Name and specify the config file, then click *Restore* to restore the configuration.
	USB Device:	A list of config. files on the USB device will be displayed in File Name (USB Device). Select the file to restore and click *Restore* to restore it.

- When saving to a USB device, the extension is automatically set to "cfg".
- Do not turn off the device while saving or restoring.
- Once the file is restored, "The product will reboot" is displayed. Click *Reboot* to reboot. The configuration will be applied after rebooting.
- Do not restore settings using a manually edited settings file. The switch may become inaccessible if the settings file is broken.
- When restoring the settings file from a USB device, place the settings file in the root directory of the USB device. Files in directories are not recognized.

Reboot

This is used to reboot the switch.

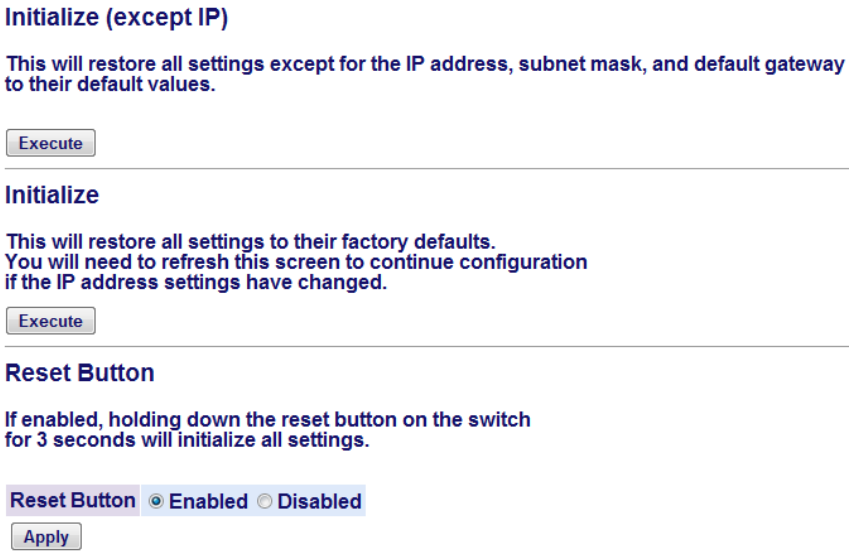
---> Management > Reboot

Parameter	Meaning
Reboot	Click *Reboot* to reboot the switch.

Initialize

This is used to initialize the settings and reboot the switch.

---> Management > Initialize


Initialize (except IP)
This will restore all settings except for the IP address, subnet mask, and default gateway to their default values.
Execute
Initialize
This will restore all settings to their factory defaults.
You will need to refresh this screen to continue configuration if the IP address settings have changed.
Execute
Reset Button
If enabled, holding down the reset button on the switch for 3 seconds will initialize all settings.
Reset Button
Enabled
Disabled
Apply

Parameter	Meaning
Initialize (except IP)	Initializes all settings except the IP address, subnet mask, and default gateway, and reboots the switch.
Initialize	Initializes all settings and reboots the switch.
Reset Button	Enable or disable the reset button.

MAC Address Table (Port Order)

This displays the MAC address table in port order.

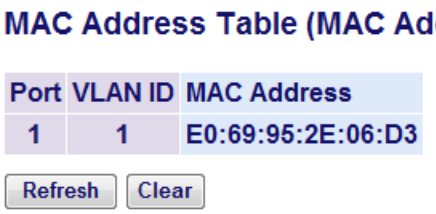
---> Management > MAC Address Table > Port Order

Parameter	Meaning
MAC Address Table (Port Order)	This displays the MAC address table in port order. Click *Refresh* to update the selected port to the latest information. Click *Clear* to clear the table.

MAC Address Table (MAC Address Order)

This displays the MAC address table in MAC Address order.

---> Management > MAC Address Table > MAC Order



Parameter	Meaning
MAC Address Table (MAC Address Order)	This displays the MAC address table in MAC Address order. Click *Refresh* to update the selected port to the latest information. Click *Clear* to clear the table.

Statistics

This displays statistics on the switch.

---> Management > Statistics

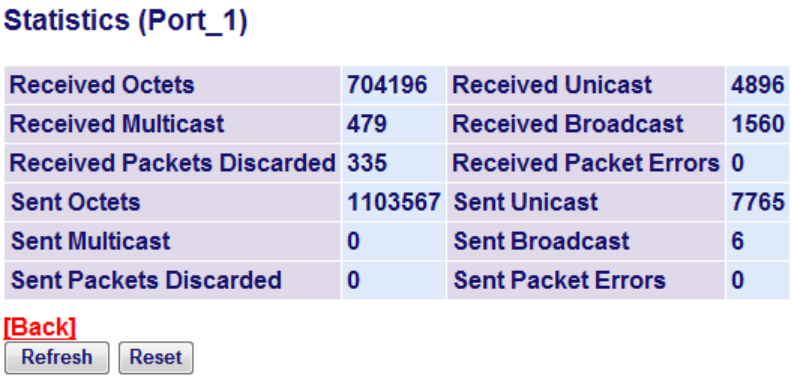
Statistics

Port	Name	Received Octets	Received Packets	Sent Octets	Sent Packets	
1	port_01	696253	6845	1089100	7625	Details
2	port_02	0	0	0	0	Details
3	port_03	0	0	0	0	Details
4	port_04	0	0	0	0	Details
5	port_05	0	0	0	0	Details
6	port_06	0	0	0	0	Details
7	port_07	0	0	0	0	Details
8	port_08	0	0	0	0	Details
9	port_09	0	0	0	0	Details
10	port_10	0	0	0	0	Details
11	port_11	0	0	0	0	Details
12	port_12	0	0	0	0	Details
13	port_13	0	0	0	0	Details
14	port_14	0	0	0	0	Details
15	port_15	0	0	0	0	Details
16	port_16	0	0	0	0	Details

Refresh Reset

Parameter	Meaning
Name	Name of the port.
Received Octets	Data octets received.
Received Packets	Packets received.
Sent Octets	Data octets sent.
Sent Packets	Packets sent.
Details	Click *Details* to display detailed information.
Refresh	Click *Refresh* to update to the latest information.
Reset	Click *Clear* to clear the information.

---> Management > Statistics > Details



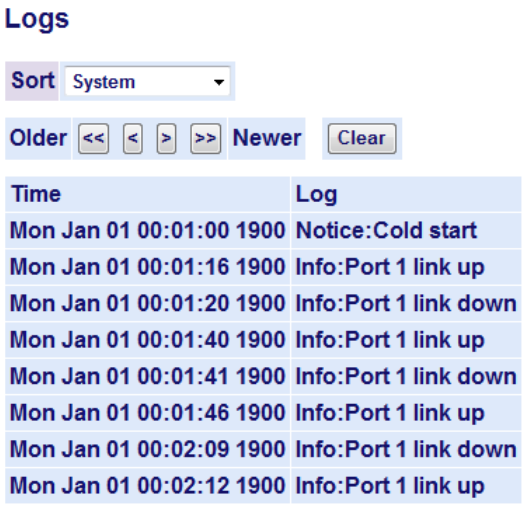
Parameter	Meaning
Received Octets	Data octets received.
Received Unicast	Unicast packets received.
Received Multicast	Multicast packets received.
Received Broadcast	Broadcast packets received.
Received Packets Discarded	Packets that could not be received due to a lack of system resources.
Received Packet Errors	Packets received that contained errors such as CRC errors.
Sent Octets	Data octets sent.
Sent Unicast	Unicast packets sent.
Sent Multicast	Multicast packets sent.
Sent Broadcast	Broadcast packets sent.
Sent Packets Discarded	Packets that could not be sent due to a lack of system resources.
Sent Packet Errors	Packets that could not be sent due to factors suc as collisions, etc.

The maximum value for each counter is 64 bits. Once the maximum is reached, the counter is reset to 0.

Logs

This displays the switch's log information.

---> Management > Logs



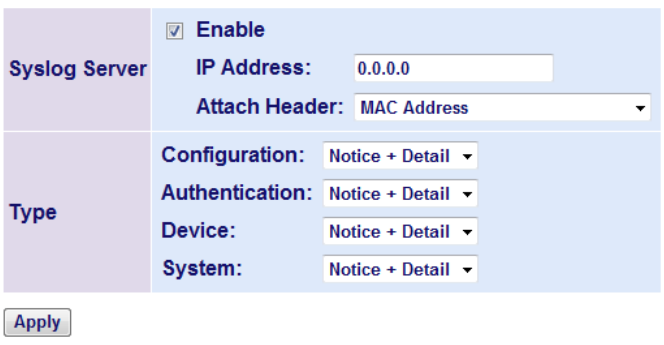
Parameter	Meaning
Sort	Select the type of log message displayed.

- Click *Clear* to clear the syslog.
- Click <<, <, > and >> to change pages.
- The correct time must be set using SNTP Settings to display the corect time in the log information.

Syslog Settings

These settings are for configuring the transfer of the switch's logs to a Syslog server.

---> Management > Syslog Settings



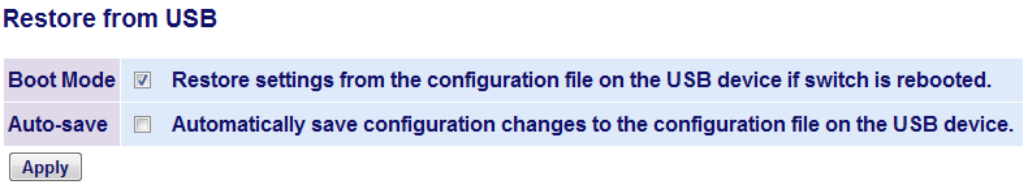
Parameter	Meaning
Enable	Enables transfer of logs to a Syslog server.
IP Address	Specify the IP address of the Syslog server.
Attach Header Info	Select the information added to the header of the data sent. MAC Address: Include information on the switch's MAC address in the log. MAC Address and System Name: Include information on the switch's MAC address and the switch name in the log.
Type	Select the category of log information sent. There are four log categories: Configuration, Authentication, Device and System. None: The log is not transferred. Notice: Only logs concerning notices are transferred. Detailed: Only logs concerning information are transferred. Notice + Detail: All messages are transferred.

A separate Syslog server is required.

Restore from USB

These settings are used to configure USB settings.

---> Management > Restore from USB


Restore from USB
Boot Mode
Restore settings from the configuration file on the USB device if switch is rebooted.
Auto-save
Automatically save configuration changes to the configuration file on the USB device.
Apply

Parameter	Meaning
Boot Mode	The settings file is read from a USB device when booting. When the boot settings are set to read from USB, they are read from the "default.cfg" file on the USB device. If there is no "default.cfg" file on the USB device, the configuration file is read from the switch itself. When the settings are changed while a USB device is inserted in the device, "default.cfg" is created on the USB device, and synchronized with the settings on the product. The latest settings file is always saved to "default.cfg" on the USB device. "default.cfg" under the root directory of the USB device is loaded upon booting.
Auto-save	A backup of the configuration file is automatically saved to the USB device when the configuration is changed. If enabled, the settings file is automatically saved to "default.cfg" and "yyyymmdd.cfg" on the USB device whenever configuration changes are made. The latest version is always saved to "default.cfg", and the version before the latest settings file is saved to "yyyymmdd.cfg". default.cfg: The latest settings file is synchronized with the product. yyyymmdd.cfg: This indicates the date set on the switch. The settings file from before the change in settings is saved as a backup. Example: If the settings are changed on October 1, 2012 while Auto-save is enabled, the settings file for after the change in settings is saved to the USB device as "default.cfg" and the settings file from before the change in settings is saved as "20121001.cfg" as a backup. If several changes are made to the settings file on the same day, "yyyymmdd.cfg" is overwritten. "default.cfg" and "yyyymmdd.cfg" are saved to the root directory of the USB device.

Ping

This is used to perform Ping (response confirmation) tests.

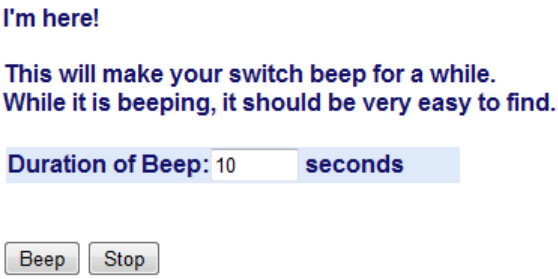
---> Management > Ping

Parameter	Meaning
Destination IP address	Specify the IP address of the Ping target. Click *Execute* to display the results.

I'm here!

The selected switch will sound a buzzer, making it easy to locate.

---> Management > I'm here!


I'm here!
This will make your switch beep for a while.
While it is beeping, it should be very easy to find.
Duration of Beep: 10 seconds
Beep
Stop

Parameter	Meaning
Duration of Beep	This sets the duration that the buzzer is sounded when I'm here! is executed. Range: 1 to 1800
Beep	The buzzer is sounded when this is clicked. Once the above buzzer duration setting has elapsed, the buzzer sound is automatically stopped.
Stop	To stop the buzzer, click this while the buzzer is sounding.

Support

Support

This displays Buffalo's website.

---> Support

Support
Click the link below for Buffalo's website,
where you can find documentation, updated firmware, and support.
Support

Parameter	Meaning
Support	This is a link to Buffalo's website, where you can find documentation, updated firmware, and support.

Chapter 3 - Troubleshooting

Power LED is not lit

Check that the switch and the power outlet are connected by the power cable.

Link LED is not lit

- Check that the power of the switch and connected device are turned on.
- Check that the switch and the connected device are both connected by a Ethernet cable.
- Check that an appropriate type of cable is used and that the cable length does not exceed the specifications.
- Check that the Ethernet adapter on the connected device is operating properly and that there are no problems with the Ethernet cable.

Can’t access via browser

- Check that you are connected to a port that is a member of the management access VLAN.
- Check that the Link LED for the connected port is lit.
- Check that the port being used is not disabled.

Forgot password and cannot login

- If the reset switch is enabled, you can restore the factory default settings by pressing the reset button. The reset switch is enabled by default.
- If the reset switch is disabled, please contact Buffalo technical support.

Power Problems

If the power LED is not lit when power is connected, this could be a problem with the power outlet, power cord, or internal power supply. Check that the power cord is firmly connected to a known-good supply of power. If the power LED still doesn't come on, there may be a problem with the internal power supply unit.

Access from the Network

You can use a Web browser to access and manage the switch from anywhere on the network to which it is connected. However, you must configure a valid IP address, subnet mask, and default gateway settings on the switch in advance. Check the following points if you are unable to establish a link with the switch.

- The network connection is valid.
- The switch has a valid IP address.
- The connected port is not disabled.
- There are no problems with the connected Ethernet cable.

Appendix

Default Configuration Settings

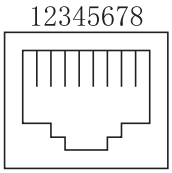
Feature	Parameter	Default Setting
System	Name	BSL + switch's MAC Address
	IP Address	192.168.1.254
	Subnet Mask	255.255.255.0
	Default Gateway	0.0.0.0
	DHCP	Disabled
Mac Address Filtering	Type of Filtering	Disable filtering
Flow Control	Name	Port_ + port number
	Allow	On
	Flow Control	Off
	EEE	On
	Mode	Auto
	Jumbo Frames	On
Admin Account	Username	admin
	Password	password
Date and Time	Date and Time	Disable SNTP 1900 Year 1 Month 1 Day 0 Hour 0 Minute 0 Second
Port PoE Settings	PoE	On
	Priority	Low
	High Power	802.3af (HP)
Power Profiles	Schedule	Manual
	Current Profile	profile_01
Turn Off LEDs	Profile	profile_01
	Turn Off LEDs?	No
VLANs	ID	1
	Name	None
	Management VLAN	Enabled
PVIDs	PVIDs	1

Feature	Parameter	Default Setting
QoS Status	QoS Settings	QoS: Off Queue: Strict
	Priority	None
QoS Mapping	Port Priority	Low
	CoS Mapping	Low
RADIUS	Auth. Server	Enabled Auth. Server IP: 1.1.1.1 Auth. Server Port: 1812 Shared Secret: -
	Reset Timer	3600 seconds
	Advanced	Termination-Action: Disabled
Port Authentication	Authentication	Disabled
	EAP Extensions	Disabled
Password Authentication	Password Authentication	Enabled Server Port: 8080
Port Trunking	Port Trunking	Disabled
Traffic Storm Control	Broadcast	Unlimited
	Multicast	Unlimited
	DLF	Unlimited
Mirroring	Mirror 1 Mirror 2	Disabled
BPDU Forwarding	BPDU Forwarding	Disabled
Loop Prevention	Loop Prevention	Disabled
Syslog Settings	Syslog Server	Enabled IP Address: 0.0.0.0 Attach Header: MAC Address
	Type	Configuration: Notice + Detail Authentication: Notice + Detail Device: Notice + Detail System: Notice + Detail
Restore from USB	Boot Mode	Enabled Restore settings from the configuration file on the USB device if switch is rebooted.
	Auto-save	Disabled Automatically save configuration changes to the configuration file on the USB device.
I'm here!	Duration of Beep	10 seconds

Twisted Pair Cable and Port Specifications

A two-pair twisted pair cable is required for 1000BASE-T, 100BASE-TX and 10BASE-T connections. Each wire pair is identified by two colors. For example, one may be red and the other red with a white stripe. In addition, RJ-45 connectors are required at each end of the cable.

Note: A 4-pair 8-wire straight cable is required to use PoE power supply.
It is necessary to connect wire pairs to the RJ-45 connectors in a certain direction.



100BASE-TX / 10BASE-T Port Specifications

In the cables used in 100BASE-TX / 10BASE-T, pins 1 and 2 are used for sending data, and pins 3 and 6 are used for receiving data.
The switch supports AUTO-MDIX on all ports. You can use straight cables in all network connections with computers, servers, other switches and hubs.
The pin assignments for 100BASE-TX / 10BASE-T MDI ports and MDI-X ports are shown in the following table.

Pin number	MDIX / MDI signal	Signal function
1	RD+ / TD+	Receive data (+) / Send data (+)
2	RD- / TD-	Receive data (-) / Send data (-)
3	TD+ / RD+	Send data (+) / Receive data (+)
4	Not Used	Not Used
5	Not Used	Not Used
6	TD- / RD-	Send data (-) / Receive data (-)
7	Not Used	Not Used
8	Not Used	Not Used

+ and - refer to the polarity of the wires making up each wire pair.

1000BASE-T Port Specifications

The switch supports Auto-MDIX on all 1000BASE-T ports. You can use straight cables in all network connections with computers, servers, other switches and hubs.
Use Category 5e or 6 UTP/STP cables for 1000BASE-T connections.
Also ensure that the cable length does not exceed 100 meters.
The pin assignments for 1000BASE-T MDI ports and MDI-X ports are shown in the table below.

Pin number	MDIX / MDI signal	Signal function
1	BI_DA+ / BI_DB+	Send and receive data A (+) / Send and receive data B (+)
2	BI_DA- / BI_DB-	Send and receive data A (-) / Send and receive data B (-)
3	BI_DB+ / BI_DA+	Send and receive data B (+) / Send and receive data A (+)
4	BI_DC+ / BI_DD+	Send and receive data C (+) / Send and receive data D (+)
5	BI_DC- / BI_DD-	Send and receive data C (-) / Send and receive data D (-)
6	BI_DB- / BI_DA-	Send and receive data B (-) / Send and receive data A (-)
7	BI_DD+ / BI_DC+	Send and receive data D (+) / Send and receive data C (+)
8	BI_DD- / BI_DC-	Send and receive data D (-) / Send and receive data C (-)

+ and - refer to the polarity of the wires making up each wire pair.

35012948-01

CAUTION: Please read and observe the following general product safety information guidelines.

The following safety guidelines and precautions will help ensure your personal safety and reduce the risk of damage to your Buffalo product and your working environment. Please read and follow these guidelines carefully.

General Safety

When installing and using this product, observe all operating instructions, warnings and precautions supplied by Buffalo as well as those supplied by any related home appliance and peripheral device manufacturers.

Do not disassemble, modify, or attempt to repair this product, except as explained in the Buffalo product documentation.

Make sure that the power plug is fully and securely inserted into the outlet.

Do not use the product with a power cable that is damaged, torn, or frayed.

Do not allow a young child to use this product except under the supervision of an adult familiar with its operation.

Do not use the product in a wet or very humid environment, such as in a bathroom or near a sink or swimming pool, and do not touch the product with wet hands.

Do not push or insert any objects into the air vents or other openings on the product or spill any liquid onto the product.

If any liquid or foreign matter enters this product, immediately disconnect the power plug from the outlet.

Remove dust or other foreign matter from each connector, being careful not to touch the connectors with your bare hand.

If the product emits smoke or an unusual smell or sound, immediately disconnect the power plug from the outlet and refer servicing to qualified personnel.

Do not expose the product to extremely hot or extremely cold temperatures, or place it near radiators, electric heaters, or other heat sources.

Arrange the product's power cord and cables so that they will not be stepped on or tripped over.

Do not place any objects on top of the product.

Do not disconnect the power cable while the Buffalo product is being accessed by your device.

Clean the product as necessary with a soft cloth dampened with water. Do not use any organic solvent, such as thinner or benzine, to clean the product.

Only use the power cable (or AC adapter) and signal cables that came with this product.

Static Electricity

Electrostatic discharge, commonly referred to as "static electricity," can harm components in your Buffalo product. To avoid damage due to static electricity, do the following:

Discharge static electricity from your body before touching the product by touching a nearby grounded metal object (such as a doorknob or an aluminum sash).

If the product is static sensitive and comes in antistatic packing, only unwrap the product when you are ready to install it and discharge static electricity from your body before doing so.

Product Environment

In order to minimize the risk of electrical shock, fire, and damage to the Buffalo product and related computer and other electronic devices, avoid installing or using the product in any of the following locations or environments:

-in places where strong magnetic fields or static electricity may be generated;
-in places where the temperature/humidity conditions may produce condensation or exceed the levels specified in the device's manual;
-in very dusty places;
-in places where strong vibrations occur;
-on uneven or unstable surfaces;
-in direct sunlight for extended periods;
-near open flames or other heat generating sources;
-in places exposed to spills or falling objects.